

# PATENT SPECIFICATION

1,040,645

1,040,645



Date of Application and filing Complete  
Specification: June 26, 1964.

No. 26643/64

Application made in France (No. 939856) on June 28, 1963.

Application made in France (No. 978405) on June 16, 1964.

Complete Specification Published: September 1, 1966.

© Crown Copyright 1966.

Index at Acceptance:—B8 C (1B1A, 10K1, 10P1C, 10P1D, 10P2B, 10P2C); B8 A12P2.

Int. Cl.:—B 65 b // B65g.

## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

#### Means for Feeding Empty Pallets to Loading Tables.

We, JULES LERAY, of 46 bis, rue Faidherbe, Albert, Somme, France, and BERNARD LANGLUME, of 13, rue Mertens, Bois-Colombes, Seine, France, both of French Nationality, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following

statement:—

In view of the extreme variety of products stacked by means of fork lift trucks using a handling pallet or platform, the loading of this pallet is usually carried out by hand, and exchanging a loaded pallet for an empty one leads to fatigue and loss of time by the operator.

It is an object of the invention to provide a distributor for empty pallets in which the movement of the belt or the like feeding the products to be loaded on to the pallet, the movement of the hydraulic platform on which the pallets are loaded and the movement of the conveyor removing the loaded pallets may be perfectly synchronized.

The invention comprises substantially a distributor adapted to move empty pallets on to a lifting platform, forming at the same time the means for removing a loaded pallet. This distributor comprises a magazine with three lateral walls, the front wall being open and allowing the introduction of a stack of empty pallets by means of a lift truck, at intervals of one hour for example. The base of this magazine is formed by a track of twin rollers extending towards the lifting platform and engaging the double roller track of this lifting platform when the latter is in its lowest position.

Between the two runs of roller tracks forming the base of the magazine, there is arranged horizontally a double-acting hydraulic jack connected to two pairs of

rams, spaced at a distance greater than the width of a pallet, one of these two pairs effecting the ejection of the charged pallet from the lifting platform towards the removing conveyor whilst the other pair of rams ejects the lowest pallet from the pile of empty pallets in the magazine which replaces the previously removed loaded pallet on the lifting platform.

This last action is made possible by partially relieving the lowest pallet in the pile from the weight of the pallets stacked on top of it by moving the piston of the hydraulic jack forward and actuating reciprocating supports which lift the above stacked pile of pallets. During the return stroke of the piston of the hydraulic jack, the reciprocating supports lower themselves and allow the pile to drop by an amount corresponding to the height of the ejected pallet, and this whole cycle is repeated when the workman operates a switch which actuates the electrically driven pump controlling the double acting hydraulic jack.

The control of the movements of the hydraulic lifting platform is effected by known means, using two pedals operated by the operator, one determining the lifting stroke of the platform to its maximum height for loading the first layer of articles, the other determining the descent by the height of one layer. For loading the second half of the first layer, the operator turns the platform of the device through 180 degrees and then through 90 degrees for loading the first half of the next layer and finally again through 180 degrees for the second half of this layer.

When the lifting platform has reached its lowest position, its roller track is located between the distributor roller track and the removing roller track.

The invention will be further described,

[Price 4s. 6d.]

by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is an elevation of the magazine into which are placed the empty pallets;

5 Fig. 2 is a plan view of the base of this charger;

Figs. 3 to 6 show in side elevation four positions of the reciprocating supports during the forward and return strokes of the hydraulic jack.

In these drawings, the pallet magazine has a back and two side walls, whilst the base consists of a distributing arrangement, comprising freely rotatable rollers 2, a double-acting hydraulic jack 3, arranged horizontally and controlled by an electrically driven pump 4; 5 is a rod connected to the piston and the frame of rams 6 which, during the forward stroke of the piston, engage the loaded pallet moving it onto the removal conveyor (not shown). The rams 10 eject the lowest pallet 11 of the pile and move it on to the lifting platform, not shown; the reciprocating supports 12, 13 are actuated first; reciprocating supports 14, 15 are actuated subsequently; 16 represents a pair of rollers which, during the forward stroke, makes contact first with lever arms 19, later with lever arms 21, under which the pair of rollers 16 are retained in order to maintain the reciprocating supports 14, 15 in their position, whilst the pair of rollers 17 are retained under lever arms 19 so as to retain the reciprocating supports 12, 13 in position, as shown in Fig. 5.

During the return stroke of the piston, the rollers 16 leave lever arms 21 and make contact with lever arms 22 of the reciprocating supports 14, 15 whilst the rollers 17 leave lever arms 19 and make contact with lever arms 20 of supports 12, 13, the lever arms 20 being mounted on a ratchet which allows the passage of the roller 17 during the forward stroke of the piston, but acts as a stop during the return stroke, so as to facilitate lowering of the support 12, 13 into the position shown in Fig. 6. Also lever arms 19 are ratchet mounted, allowing passage of the roller 16 during the return stroke at which time roller 16 resumes its initial position according to Fig. 3. However, this ratchet action is stopped in the opposite direction so that lever arms 19 are affected only by the forward movement of the rollers 16 as shown in Fig. 4. Frame members 23 connect the spindles of the rollers 16 and of the rollers 17 and 24 represents connecting rods articulated on the frame 25 integral with the rod 5 of the piston, the angled ends 26 of which pick-up tenons 27 of the frame 23 under the action

of the symmetrical cam 28 integral with the body of the hydraulic jack 3.

As the angled ends 26 pick up tenons 27, the frame 23 and pairs of rollers 16 and 17 are moved to the left (Fig. 3). During the return stroke, as soon as the rams 10 have returned to the position shown in Fig. 2, the tenons 27 are released by angled ends 26 and rams 6 continue their return movement until the position represented in Fig. 2 is reached.

A manual switch controls during an operating cycle the starting of the electrically driven pump operating the double-acting hydraulic jack.

Various modifications may be made within the scope of the invention as defined in the appended claims.

#### WHAT WE CLAIM IS:—

1. For moving empty pallets on to a lifting platform, a distributor comprising a magazine with three lateral walls, the front thereof being open for the introduction of empty pallets; the base of the magazine comprises two tracks of rollers aligned with two other tracks of rollers on the lifting platform while in its lowest position; a double-acting hydraulic jack located between the tracks of the two rollers and operating through a first frame integral with the piston of the hydraulic jack; two pairs of rams, one of which effects the ejection of a loaded pallet from the lifting platform towards a removal conveyor, and the other pair ejects and guides the lowest pallet from the magazine to the lifting platform.

2. For moving empty pallets, a distributor as claimed in claim 1, comprising reciprocating supports which, during the forward stroke of the piston, lift the second to the lowest pallet of the pile while the lowest pallet is ejected and which, during the return stroke, are lowered to lower the stack of pallets by an amount corresponding to the height of the ejected pallet, wherein the reciprocating movement of the supports is effected by the action of rollers, the axes of which are connected to a second frame in turn connected to the first frame, by means of two articulated connecting rods having angled ends, which ends, under camming action, pick up tenons on the second frame and actuate the rollers.

3. For moving empty pallets, a distributor substantially as hereinbefore described, with reference to, and as illustrated in the accompanying drawings.

MARKS & CLERK,  
Chartered Patent Agents,  
Agents for the Applicants.

1,040,645 COMPLETE SPECIFICATION  
 2 SHEETS This drawing is a reproduction of  
 the Original on a reduced scale.  
 SHEETS 1 & 2

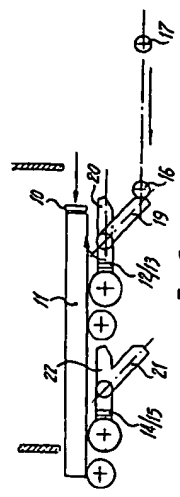


Fig. 3

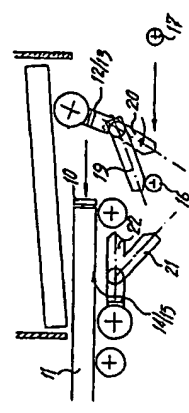


Fig. 4

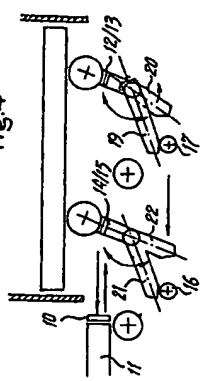


Fig. 5

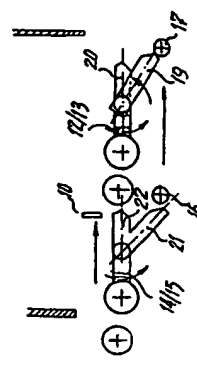


Fig. 6

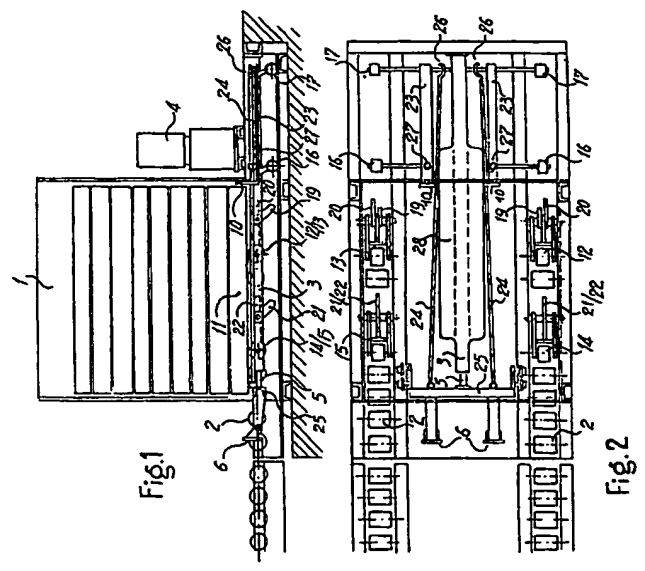


Fig. 1

Fig. 2